

## VEGETABLE AND FRUIT CLEANING TOOL

## CROSS REFERENCE TO RELATED APPLICATION

5           The present application claims priority from U.S. Provisional Application Ser. No. 60/285,310, filed April 23, 2001.

## BACKGROUND OF THE INVENTION

## 10    1. Field of the Invention

          This invention relates to the kitchen cleaning devices commonly used in household and commercial applications. More specifically it relates to a cleaning device that substantially improves the ability to remove pesticides, wax, dirt, and other contaminants from the surface of fruits and vegetables.

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## 2. Description of the Related Art

          Scrub brushes have been the most commonly used method of cleaning fruits and vegetables in kitchens all over the globe. These bristle brushes are held in one hand and rubbed against the vegetable or fruit for cleaning. Unfortunately this time consuming method of cleaning fruits and vegetables only scrubs small sections at a time. In many cases only a small section of the vegetable or fruit is cleaned due to rushed or sloppy brushing.

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          Being able to clean the vegetable or fruit on all sides sufficiently is important to remove dirt, bacteria, wax, and contaminants from the vegetable or fruit. If the vegetable or fruit is not properly cleaned, contaminants and bacteria may be consumed, thereby reducing the quality of the food or leading to sickness.

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          These small brushes also hold small bits of material inside their bristles. This can lead to bacteria or mold growth. Also, in many cases, these brushes are used for

activities other than just vegetable and fruit washing, thus there are chances of contamination.

Using such brushes is also very difficult for people with arthritis and other joint conditions, since so much pressure is put on the fingers. Thus the existing devices are  
5 inadequate and can cause negative results. A tool that cleans the vegetable or fruit thoroughly, quickly, and easily will help avoid consuming dirt, wax, residues, and bacteria, and will save time and effort for the user.

The most popular method to date for washing fruits and vegetable has been the scrub brush. As shown in U.S. Des. Pat. 428,705, the scrub brush of this variety is  
10 composed of a handle connected to a head with arranged bristles. When held by the handle with one hand, the brush head with bristles is rubbed against the vegetable or fruit to clean.

Problems associated with this related art are contamination, inconvenience, and performance. Often times the same brush used to clean pots and pans, is used to clean  
15 fruits and vegetables. If not properly cleaned after each use, the brush becomes a breeding ground for harmful bacteria or holds cleaning agents such as soap residue, which can then cross-contaminate the fruits and vegetables. The long handle also makes it difficult to control the bristles and thoroughly clean the vegetable and fruit.

A similar design is shown in U.S. Des. Pat. 39,168; the scrub brush of this variety  
20 is composed of a small handle with bristles directly connected to the bottom. When held in the hand, the bristles are rubbed against the vegetable or fruit to clean.

A problem associated with this related art is the small brush only covers a small area. Its flat surface must be moved along the curves of the vegetable or fruit in order to clean all the sides. In many cases the vegetable or fruit is not thoroughly cleaned due to  
25 the size and shape of the brush, the difficulty of cleaning all sides, or a lack of time. The arrangement of the bristles also allows for particles to become stuck and contaminate the brush.

A design described in U.S. Pat. No. 5,664,278 has shaped bristles so the brush can be used on a curved surface such as an ear of corn, a mushroom, or a carrot among other

fruits and vegetables. This brush has a handle portion with bristles connected directly to the bottom. The bristles are in a plurality of straight rows extending down from the base of the handle. The rows of bristles converge so that they are closer together at one end than they are at the other end. The bristles adjacent to the sides of the brush are longer than those in the center of the brush. There are rows of longer bristles adjacent to a series of rows of shorter bristles to assist in the operation of corn silk removal.

The problem associated with this related art is having to move the brush up and down repeatedly on all the sides of the corn, vegetable, or fruit to thoroughly remove silk and other particles. The arrangement of the bristles may cause particles and silk to become stuck. This may then lead to bacteria growth and contaminate the brush.

A design described in U.S. Pat. No. 3,805,313 has bristles attached to a long handle, which can be used for cleaning corn and the like. Metal brush filaments arranged concentrically on a brush handle and each having a small depression at spaced locations thereon, similar to that obtained by stripping wire screen, are just the right flexibility and consistency for cleaning tiny corn silk hairs from a fresh ear of corn.

Some problems associated with this related art include its size, materials, and construction. Its small brush requires many strokes to sufficiently clean vegetables and fruits. Its metal bristles will rust over time and small bits of matter will become stuck in the bristles.

A related art as described in U.S Pat. No. 5,427,573 cleans vegetables and fruits with a series of rotating brushes. This cleaning apparatus for fruits or vegetables includes a plurality of rods disposed in parallel about a common axis and defining a space having an intake opening and a discharge opening. The rods include driven rods rotated about their respective axes and non-driven idler rods. The rods are moved along a closed circular path surrounding the axis as the driven rods are rotated. The food items being cleaned can be fed through the cleaner from the intake to the discharge opening by a feed mechanism in the form of an auger brush. This device is commonly used for commercial applications where large quantities of vegetables and fruits are to be cleaned.

Some problems associated with this related art include its size and its inability to thoroughly remove tough debris and other contaminants such as wax and chemicals. Since this related art is designed for large volumes of vegetables and fruits, its size and design is not suited for kitchen use. The method of cleaning is effective for removing loose debris such as dirt. However it does not remove smaller particles, wax, or chemicals, which may adhere to the vegetable or fruit.

#### SUMMARY OF THE INVENTION

A produce cleaner is described which is a porous, flexible, generally bag-shaped container. At least one surface of the container is abrasive and both surfaces may be abrasive. The container includes an opening through which produce is inserted inside the container. The opening may include an elastic edge such that the size of the opening may be increased for insertion of the produce and then reduced once the produce is inside the container. The container may include a device for increasing the size of the opening such as a loop located near the opening which can be pulled. The container is preferably made from a durable, porous and water repellent material and can be constructed from any of the following materials: homopolymers, polyamides, polyethylenes, polyurethanes, or polypropylenes. Preferably the container is constructed from plastic and may be woven. To achieve the desired porosity, the material may include numerous holes which allow fluids to pass through. The container may also include handles on the external surface for ease of use.

#### BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1A is a front perspective view of a related art brush.  
Fig. 1B is an underside view of a related art brush.  
Fig. 1C is a side view of a related art brush in use.  
Fig. 1D is an underside view of a related art brush.

Fig. 1E is a front side view of a related art brush.

Fig. 1F is a side view of a related art brush in use.

Fig. 1G is an underside view of a related art brush.

Fig. 1H is a front side of a related art brush.

5 Fig. 1I is a perspective view of a related art brush in use.

Fig. 1J is an end view looking into the ends of the brush bristles of a related art brush.

Fig. 1K is a top plan assembly view of a related art bush.

Fig. 1L is a perspective view of a related art cleaning device.

10 Fig. 2 is a perspective view of the present invention

Fig. 3 is a perspective view of the present invention in use.

Fig. 4 is a perspective view of the present invention in use.

Fig. 5 is a view of the present invention placed over the hand.

Fig. 6 is a perspective view of the present invention being used as a mitt.

15 Fig. 7 is a view of the present invention used as a mitt to de-silk corn.

Fig. 8 is a side view of the present invention.

Fig. 9 is a detail of the construction of the present invention.

Fig. 10 is a top view of the present invention.

Fig. 11 is a bottom view of the present invention.

20 Fig. 12 illustrates a further embodiment of the invention.

Fig. 13 illustrates a further embodiment of the invention.

Fig. 14 illustrates a further embodiment construction of the invention.

Fig. 15 illustrates a further embodiment construction of the invention.

## 25 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The Vegetable and Fruit Cleaning Tool of the present invention increases the ability of the user to wash and clean vegetables and fruits thoroughly and quickly.

The present invention was designed to improve efficiency by surrounding the vegetable or fruit with an abrasive material. Once the vegetable or fruit is dropped into the bag-shaped present invention, it is enclosed by and in contact with the abrasive material. The present invention with the vegetable or fruit inside is then placed under  
5 flowing water where hands are used to agitate the bag. The action is very similar to washing one's hands, but in this case the present invention and vegetable or fruit is between the hands. The action of rubbing the abrasive walls of the present invention against the vegetable or fruit helps remove dirt, wax, pesticides, and contaminants. The flowing water then washes away these contaminants.

10 Instead of cleaning a fruit or vegetable with a scrub brush that only cleans a small area at a time, the present invention surrounds the entire vegetable or fruit making cleaning easier, faster, and more efficient. The present invention is also more sanitary than traditional means. When cleaning vegetables or fruits, particles often become lodged in the fibers of tradition brushes. The porous and abrasive material of the present  
15 invention allows water to flow through the present invention, flushing particles away from the vegetable or fruit and the tool.

To remove the vegetable or fruit from the present invention, the unique bag-like design can be turned inside out or the vegetable or fruit can be taken out by hand. The next vegetable or fruit to be cleaned can then be dropped into the present invention. This  
20 reversible design allows for fast washing of multiple vegetables or fruits.

For cleaning large or long vegetables and fruits, either a larger version of the invention is used or the present invention is placed over the hand as if a mitt. The hand, which is inside the present invention, is then rubbed on the vegetable or fruit to clean off dirt, wax, pesticides, and contaminants. This method makes it faster and more efficient to  
25 clean large or long vegetables and fruits, than traditional methods. Since the present invention fits over the hand, cleaning the vegetable or fruit is as simple as rubbing the surface of the vegetable or fruit. The present invention can also be placed over the hand as a mitt and rubbed on corn to remove corn silk.

Cleaning vegetables and fruits with the present invention is fast, efficient, and easy to use because it washes the entire surface of the vegetable or fruit at one time and allows dirt, wax, pesticides, and contaminants to wash away. In addition to cleaning and removing contaminants, the vegetable and fruit cleaning tool can be used to de-silk corn.

5       The Vegetable and Fruit Cleaning Tool is preferably approximately 4 inches wide and 8 inches long, but can be smaller or larger depending on the particular use. For example, a version designed to clean potatoes, apples, pears, peppers, and other fruits and vegetables of this size would be large enough to hold these vegetables and fruits while a version designed to clean cherries, grapes, strawberries and other fruits and vegetables of  
10 this size would be much smaller. The body should be made from a material with high tensile strength, resilience, abrasive nature, and natural water repellency such as a homopolymer, polyamide, polyethylene, polyurethane, or polypropylene. This material will preferably be rectangular in section so as to have edges or exhibit some other abrasive means. This material may then be woven together in a loose nature, which will  
15 allow for the body of the present invention to expand or contract. This loose weave will also allow for water and contaminants to flow through easily. The rim may be made of a similar material and may include an elastic cord or be elastic in nature. The woven body can be closed at the end by mechanical fasteners, fusing of the woven plastic, or other similar means.

20       Referring to Fig. 2, cleaning tool 1 has a woven body 2, opening 3, elastic rim 4, closing loop 5, and one open loop 6. The woven body 2 is capped by elastic rim 4, creating mouth 3. Open loop 6 is connected to elastic rim 4. Closing loop 5 brings the woven body 2 together to create a bag-like shape. When the elastic rim 4 and open loop 6 are pulled apart, the opening 3 will become larger. When items are placed inside the  
25 woven body 2 they pass through the opening 3. Once inside the elastic rim 4 will constrict to hold the item inside.

As illustrated in Fig. 3 when the elastic rim 4 and open loop 6 are pulled apart, opening 3 becomes larger. This allows for vegetable or fruit 7 to enter the present

invention 1. Once inside the present invention 1, the woven body 2 makes contact with all sides of the vegetable or fruit 7.

In Fig. 4 the present invention 1, with the vegetable or fruit 7 is placed under flowing water 8. The user's hands then rub and rotate the present invention 1 with the vegetable or fruit 7 inside under the flowing water 8. This motion moves the woven body 2 across the surface of the vegetable or fruit 7. This woven body 2 is abrasive thus removing contaminants from the vegetable or fruit 7.

In Fig. 5 the present invention is seen over the hand. The elastic band 4 is around the wrist of the hand. In this position the present invention can be used as a mitt to clean the vegetable or fruit 7.

In Fig. 6 the present invention is seen over the hand cleaning the vegetable or fruit 7. The woven body 2 is rubbed against the vegetable or fruit 7. This action removes surface contaminants.

In Fig. 7 the side of the present invention 1 can be seen with its woven body 2, opening 3, elastic rim 4, closing loop 5, and open loop 6.

In Fig. 8 a detailed construction of the preferred embodiment of the present invention 1 can be seen with its woven body 2 and elastic rim 4. The woven body 2 is preferably made of a plastic and is abrasive in nature. Elastic rim 4 is attached to the woven body 2 by sewing, fusing or other appropriate means. The end of the woven body 2 can be closed by the closing loop 5 or other effective methods such as fusing the plastic fibers together, other mechanical fasteners or other appropriate means.

In Fig. 9 the top of the present invention 1 can be seen with its woven body 2, opening 3, elastic rim 4, and open loop 6.

In Fig. 10 the bottom of the present invention 1 can be seen with its woven body 2 and closing loop 5.

In Fig. 11 a further embodiment can be seen. This simple version has no handles or exterior loops.

In Fig. 12 a further embodiment with handles 9 and 10 can be seen attached to woven body 2, elastic rim 4, and closed loop 5. These handles 9 and 10 can be used to



place the hands and fingers inside. This allows for more control while using this further embodiment.

In Fig. 13 a further embodiment construction can be seen in detail. The body material is woven together. This simple cross weave is composed of abrasive fibers.

5 In Fig. 14 a further embodiment construction can be seen in detail. The body material is composed of little brushes 11 and holes 12. These little brushes are abrasive. When vegetables or fruit is placed inside the present invention these little brushes 11 scrub contaminants from the surface or the fruit while water runs through the holes 12 removing these contaminants.

10 While the description above refers to particular embodiments of the present invention, it will be understood that many modifications may be made without departing from the spirit thereof. The accompanying claims are intended to cover such modifications as would fall within the true scope and spirit of the present invention.